



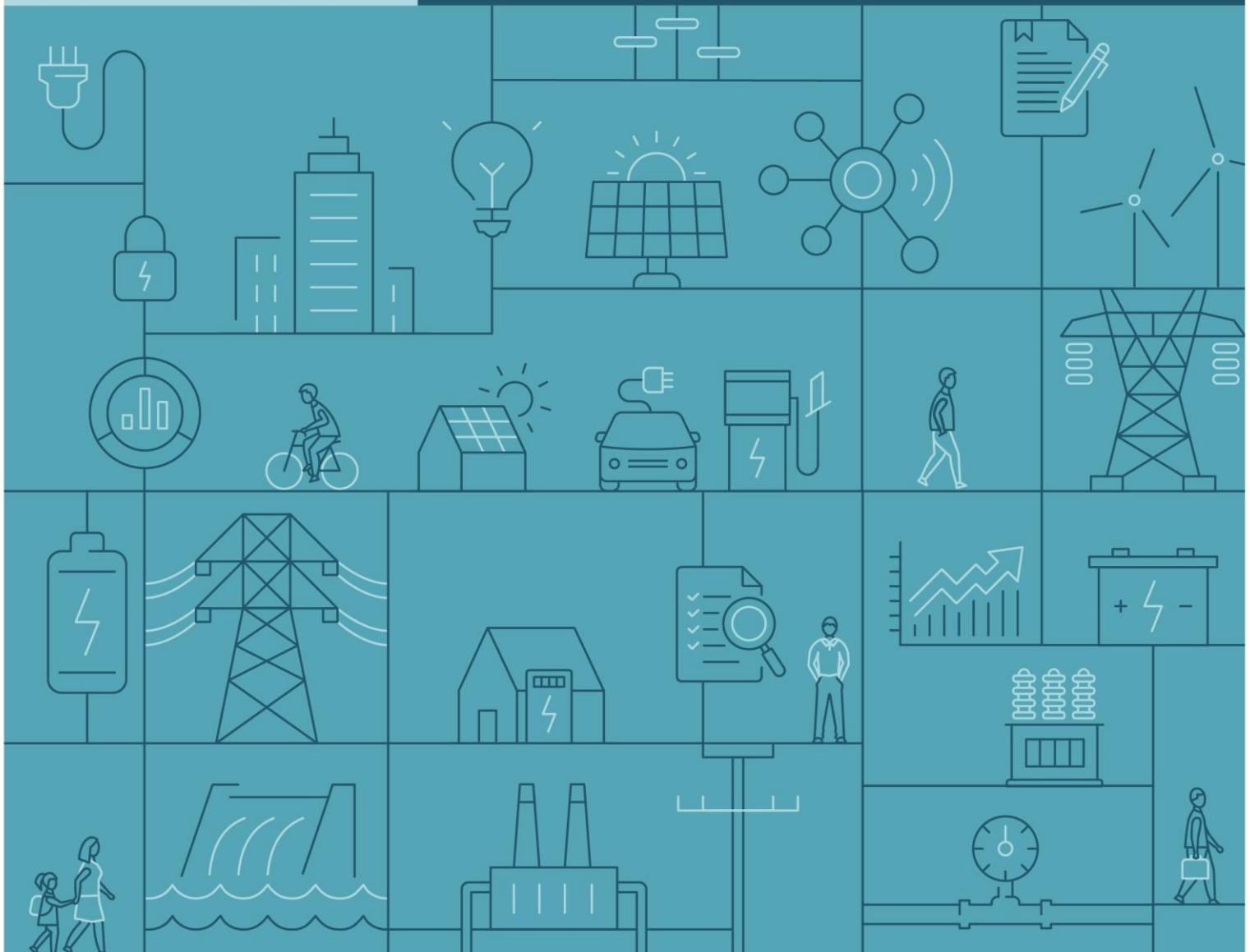
Consumer
Trustee



2021 Infrastructure Investment Objectives Report Webinars

December 2021

Questions and answers



The questions included in this document are authored by attendees to the IIO Report related webinars held by the NSW Consumer Trustee in December 2021 and have not been edited.

Questions and answers from initial Infrastructure Investment Objectives Report Webinar 7 December 2021

1. To clarify - the objective is to minimise electricity prices, not overall consumer costs including prices and fixed charges?

The Consumer Trustee is required to act in the long-term financial interest of NSW consumers. A fundamental part of this role is the production of the IIO Report and the underpinning 20-year Development Pathway and 10-year plan. The costs modelled in preparing the Development Pathway include wholesale costs and scheme costs, the latter of which includes costs paid by the Scheme Financial Vehicle under LTES agreements and network build costs associated with the development of renewable energy zones. This can be considered as the cost of providing wholesale energy services to NSW consumers. The development pathway seeks to minimise these costs but does not impact other components of NSW consumer bills such as existing network charges and retail margins.

2. Does the firming infrastructure need to be renewable/ is there an advantage for firming infrastructure being renewable?

The Consumer Trustee can only conduct a tender for firming infrastructure if directed to do so by the Minister. If so directed, the infrastructure does not need to be renewable.

3. Does the supply chain adjusted scenario just consider build rate/demand driven by NSW policy or national build rate/demand?

The build rate is NSW specific. However, the modelling does account for NEM wide supply and demand forecasts, and nationwide supply chain considerations.

4. Is 2GW LDS in addition to Snowy 2.0?

Yes.

5. Does the state based long-duration storage target get adjusted (scale, timing etc) if other policies (i.e. Physical RRO) drive dispatchable generation or LDS?

The 2GW LDS minimum objective is set by legislation.

6. To clarify - did Melanie say that the tender is to provide no advantage to REZ located projects? Doesn't that defeat their purpose?

The Development Pathway and 10-year plan should be interpreted as being neither technology- nor location-specific. That is, the NSW Consumer Trustee's recommendations for LTES agreements will be based on which projects represent the highest value for NSW electricity customers at the time of the competitive tender processes, regardless of technology or location. However, to recommend a LTES agreement that relates to a generation project that is not, or will not, be part of a renewable energy zone, the NSW Consumer Trustee must be satisfied that it shows 'outstanding merit'.

To demonstrate 'outstanding merit', a project outside of a REZ must be comparable to a REZ project in terms of matters such as:

- Impact on the grid; and
- Social impact merit.

7. A key assumption in the paper is that none of Snowy 2, Kurri Kurri, Humelink, Tallawarra B etc is delayed, nor any coal retirement brought forward. How quickly will AEMO Services be able to update projections and plans should any of those assumptions change?

The NSW Consumer Trustee is required to publish an IIO Report every two years or as soon as practicable following a Ministerial direction to undertake a firming tender, which will take account of any changes in

assumptions. In addition to publishing the IIO Report, when the NSW Consumer Trustee is evaluating bids and/or authorising Renewable Energy Zone projects, the latest available information will be taken into account. The risk of delays to firm capacity and network augmentations has been considered in the IIO Report through the examination of different Development Pathways against sensitivities and resilience criteria.

8. Good to hear that projects will be rejected if they don't meet financial hurdles (i.e. too expensive). Will these parameters be made public?

The Tender Rules will include merit criteria, an overview of which is available in the "Competitive Tender Discussion Guide" available at the AEMO Services website - <https://aemo.com.au/about/aemo-services/aemo-services-as-the-consumer-trustee>. An online and interactive webinar will be held on 7 February for stakeholders to discuss the proposed competitive tender process. Registration is open via [Webinar Registration - Zoom](#).

The NSW Consumer Trustee will publish outcomes of the tender rounds after the award of contracts by the Scheme Financial Vehicle. The information that will be published is not yet finalised but it may include:

- details on total capacity of LTESA and REZ access agreement proposed and executed
- names of projects, proponents, location and capacity
- summary of LTESA fixed price ranges, key commercial terms and repayment thresholds.

9. Will REZ access rights be awarded only through LTESA tender? Or separately?

Projects' quality and merit for both access rights and LTESAs will be assessed in one competitive process run by AEMO Services. Projects may nominate whether they are seeking one or both of these products in their bids.

10. What level of transparency will there be associated with costs?

The question is unclear as to what 'costs' it is referring to. However, in general terms the EII Act establishes an objective for the construction of generation infrastructure that is necessary to minimise electricity costs for NSW electricity customers.

Forecasted consumer costs and the assumptions underpinning those costs are reported through the ongoing IIO Report process.

11. How will you incentivise dispatchable renewable generation? Is this contingent on the firming development pathway being prepared?

LTESAs will incentivise renewable generation, long-duration storage and firming infrastructure (if so directed). The default position for an LTESA is for it to be a fixed shape, fixed volume contract which is expected to incentivise firming renewable generation.

12. When Transmission augmentation is mentioned, it is not clear what is assumed? How are the assumptions and need for transmission infrastructure investments treated in the modelling? The paper suggests a strategy will be developed early next year?

The Development Pathway sets out a plan for the construction of generation and long-duration storage infrastructure. While there are no specific infrastructure investment objectives under the EII Act for network infrastructure, the regulations require that the IIO Report must contain details regarding the REZ network infrastructure projects required to achieve the infrastructure investment objectives.

AEMO has identified that network augmentations will be critical to maintaining reliable electricity supply as NSW moves to being powered by dispersed, intermittent renewable energy sources. New network infrastructure will also be required to accommodate the significant additional amount of generation that is to be constructed in the renewable energy zones contemplated by the EII Act. The need for timely development of transmission infrastructure has also been recognised by the AEMC, with the commencement of its Transmission Planning and Investment Review.

The Development Pathway is underpinned by assumptions regarding the planned network augmentations and additional network infrastructure required to enable the establishment of NSW REZs. The assumptions are drawn

from AEMO's 2020 ISP and draft 2021 IASR, as well as additional inputs developed specifically for this report in relation to the network infrastructure required to establish NSW REZs.

However, these inputs do not represent a detailed or optimised design of the transmission network. Issues relating to the technical configuration of individual projects, such as when generators are to connect, the route of the infrastructure, technical parameters, and where a substation may be located, are not yet settled. EnergyCo, in its role as Infrastructure Planner for the five REZs specified in the EII Act, is responsible for designing these projects. EnergyCo will also work with AEMO, the NSW Jurisdictional Planner, NSW distribution network service providers and other relevant parties to develop a Network Infrastructure Strategy, which will be a detailed plan for network infrastructure in NSW. That strategy – as well as work to be performed by AEMO as part of future iterations of the ISP and the AEMC's review – are intended to inform future iterations of the Development Pathway.

13. Melanie mentioned the first LDS delivered in the model was [sic] to capacity not duration of storage. Is the only reason that LDS instead of Firming was selected in the model due to the fact that LDS has a minimum legislated level but firming does not?

Yes, it is correct that LDS has a minimum legislated objective of 2 GW to be constructed before 2030, while firming infrastructure does not have a minimum legislated objective. This means that LDS capacity entry is prioritised in the model to meet its minimum objectives.

It is important to note that there has not been a direction from the Minister to conduct a firming tender.

While there is a minimum objective of 2GW of LDS to be constructed by 2030, the modelling for the 2021 IIO Report showed that a greater amount of LDS is expected beyond 2030 due to its cost competitiveness, and that the reliability standard was met.

Following the achievement of the minimum objective by the end of 2029, if additional firming or storage infrastructure is required to meet the reliability standard, long-duration storage could present a more cost-effective solution than other forms of firming infrastructure, depending on the duration of firming required.

14. Does the 'outstanding merit' decision apply to all projects outside a REZ including long duration storage (i.e. PHES?)

The 'outstanding merit' criteria applies only to generation located outside a REZ, not long-duration storage.

15. The plan for tenders separates the consideration of generation costs and firming. However technologies like offshore wind could reduce the need for firming because they are complementary to onshore wind and solar. In addition, AEMO [sic] is recommending offshore wind zones in Hunter and the Illawarra. What consideration has been given to offshore wind projects in the modelling?

The NSW Consumer Trustee has not considered offshore wind generation in the 2021 IIO Report, however given it has been considered in the draft 2022 AEMO ISP, it will likely be considered in the next iteration of modelling by the NSW Consumer Trustee. Those assumptions were not available at the time of modelling for the 2021 IIO Report.

16. Would the generation LTESAs favour generators that could meet a required fixed shape (e.g. overnight outside solar PV generation?) Would this be considered in the generation LTESA awards?

The default position for a generation LTESA is for it to be fixed shape, fixed volume however alternative LTESA bids including generation following contracts will be assessed on an equal basis, taking into account the benefits that fixed shape contracts provide to consumers. Further information can be found in the Competitive Tender Discussion Guide at <https://aemo.com.au/about/aemo-services/aemo-services-as-the-consumer-trustee>. Please note also that there is an opportunity to ask questions and provide feedback on competitive tender design at a webinar hosted by the NSW Consumer Trustee on 7 February, registration for which is open at [Webinar Registration - Zoom](#).

17. There has been the concept of bid bonds flagged re bids for LTESA contracts. Can you provide any further insight into \$ size (maybe as a %), nature of the bonds, etc. please?

Competitive tenders require proponents to make significant contractual commitments and AEMO Services will require these commitments to be collateralised by financial bonding. The objective of this is to ensure the integrity of the tender process. The bonding is expected to be sized to protect against the AEMO Services, Energy Corporation of NSW (EnergyCo NSW) and the Scheme Financial Vehicle's losses should a project not meet a legal commitment under a binding tender bid, LTESA or REZ access right. The sizing of the bonding will reflect the commitments of the parties and the characteristics of the rights granted. The key project commitments are expected to be based on the following milestones:

- Price proposal stage – bonding to be provided at the price proposal stage to ensure a project achieves contract close.
- Development and construction period - bonding to be provided at signing of the LTESA and/or REZ access right for a dual purpose to secure against reaching financial close and commercial operation date.
- Operating period – bonding to be provided at the exercise of each option.

18. How are the IIO pathways technology agnostic when wind and solar involve different output profiles and so different storage and firming requirements? Presumably the least cost pathway is technology type dependent?

The modelling does include assumptions about technology costs and output profiles in minimising NSW consumer costs, however when conducting LTESA tenders the NSW Consumer Trustee will have regard to the financial value of the particular projects and is not bound by the modelling that underpins the development pathway. Both the costs and value of different technologies to NSW consumers are considered in the formulation of the Development Pathway.

19. According to 3.3 of the report, the \$36bn "costs" are a proxy of what the customer trustee will pay to cover losses in the LTESAs. Is this right?

No. The modelling for the Report indicates that the net present value (NPV) of total costs over the 20-year modelling horizon for the supply of wholesale energy services to NSW electricity customers is approximately \$36 billion. These costs consist of wholesale prices and scheme (LTESA and network) costs. Previous modelling undertaken for NSW DPIE to inform the development of the Roadmap estimated the 20-year costs to supply wholesale energy services to NSW consumers, in the absence of the Roadmap, to be in the order of \$50.1 billion.

20. Will the fixed shape vs generation following analysis quantify the value overnight power generation shape?

In the tender assessment, both the benefits of the underlying projects and the expected costs of the LTESA bids will consider the generation profiles and contractual shapes of each bid across a day and seasonally to ensure best value to NSW consumers.

Questions and answers from follow-up Infrastructure Investment Objectives Report Webinar 15 December 2021

1. If the final ISP adopts the step change scenario as "most likely" is that likely to change the outcomes of the modelling for this report?

There are differences in the modelling assumptions between the 2021 IIO and the draft 2022 ISP. The IIO Report assumptions are broadly consistent with the 'Central Scenario' published in AEMO's draft 2021 IASR but with higher solar PV uptake rates. Due to the development timeframes for our modelling, the final 2021 IASR was not available to inform the IIO Report. The final 2021 IASR ultimately does not use a 'Central Scenario' with 'Steady progress' and 'Net Zero' scenarios being "middle of the road". Some of the assumptions will therefore differ from the 2022 ISP. The NSW Consumer Trustee does not consider that the differences in assumptions impact the validity of the modelling for this report, because they mostly relate to the latter periods of the Development Pathway where there is significant future uncertainty in any case. This uncertainty in the later stages of the Development Pathway is a reason why the NSW Consumer Trustee is required to produce an IIO Report every two years.

Regardless, the NSW Consumer Trustee will still have regard to the latest information when exercising its procurement functions in relation to LTES agreements and network infrastructure project authorisations.

2. Will only “committed” projects can participate in LTESA tender?

No, although a part of the LTESA assessment criteria is likely to include consideration of how progressed and viable the project is.

3. Any more clarity on what constitutes “outstanding merit” for non REZ projects?

A project located outside of a REZ will need to demonstrate ‘outstanding merit’. To demonstrate ‘outstanding merit’, a project outside of a REZ must be comparable to a REZ project in terms of matters such as:

- Impact on the grid; and
- Social impact merit.

Further information will be available in the tender rules when the request for proposals is announced, however there is a further opportunity to ask questions on all tender related matters on 7 February 2022 during the interactive webinar, registration open via [Webinar Registration - Zoom](#).

4. The 'pilot' tenders in 2022 are small volumes and there are already 2.4GW of projects eligible (p70.) to bid. Do you think this will prevent new projects from tendering for an LTESA until 2024?

The NSW Consumer Trustee may not allocate any LTESA agreements in the first tender round or indeed in any particular round if bids do not reflect sufficient value to NSW electricity customers.

Notwithstanding, the NSW Consumer Trustee has indicated some volume for the first pilot tender in recognition of two possibilities: first, there may be high value projects under development outside anticipated REZ boundaries that were committed after 14 November 2019, and second, there may be projects within those REZ boundaries that will connect to existing network infrastructure.

Further, because the tender sizes in the 10-Year Plan are only indicative, the NSW Consumer Trustee could choose to award LTESAs in respect of larger volumes if high value bids are received.

Greater competition is a good thing for NSW Consumers and the NSW Consumer Trustee expects to conduct highly competitive tenders, with discretion to award agreements only if such agreements are in the long-term financial interest of NSW Consumers.

5. re the 200MW and 500MW mentioned for the first tenders maximum capacity that would be contracted? For instance, would a strong 250MW project be eligible for the first tender?

The volumes for the pilot tenders are indicative only and a 250MW project would be eligible to bid. The NSW Consumer Trustee could choose to award LTESAs in respect of larger volumes if high value bids are received and it is in the long-term financial interests of NSW Consumers.

6. Can you delineate between the endogenous and exogenous variables considered in the generation mix modelling?

Input assumptions into the modelling include the capital, fixed and variable costs of technologies over time, demand side drivers and the existing and committed generation fleet across the NEM. These are some of the key drivers of market modelling outcomes. The generation mix is determined by minimising NSW Consumer costs, taking into account wholesale and scheme costs due to LTESAs. Further information on the modelling underpinning the IIO Report can be found in the Methodology and Assumptions Report, which is accessible at <https://aemo.com.au/about/aemo-services/aemo-services-as-the-consumer-trustee>.

7. A couple of timing questions: do you have firmer dates for the interim update, first tender round.

The first pilot tender is scheduled to be conducted in quarter 2, 2022 and an interactive webinar will be held on 7 February 2022, registration is open via [Webinar Registration - Zoom](#). A Competitive Tender Discussion Guide can be accessed at <https://aemo.com.au/about/aemo-services/aemo-services-as-the-consumer-trustee>. There may be an interim IIO Report published next year, but that is yet to be determined.

8. Does entering into an LTESA prevent the project from retendering in subsequent tenders (if the LTESA price in the future is higher and earlier project capex being lower)?

This is expected to be covered in the Tender Guidelines, however there is relevant information in the Competitive Tender Discussion Guide <https://aemo.com.au/about/aemo-services/aemo-services-as-the-consumer-trustee>. For example, the draft eligibility criteria restricts the eligibility of projects already in receipt of financial support from prescribed programs. There may scenarios in which existing projects the subject of an LTESA are eligible to bid for an additional agreement, such as if the project expands.

However, it should be noted that a LTESA is a legally binding contractual arrangement for its duration of up to 20 years for generation infrastructure.

9. Also, if this is your area: how will the consumer trustee notify stakeholders when tenders open and the process for applications?

Stakeholders will be informed through a variety of mechanisms, including the NSW Government Gazette, the AEMO Services website and email communications from AEMO Services. Further input into the engagement process for the pilot tenders can be provided during the 7 February 2022 webinar, registration for which is open via [Webinar Registration - Zoom](#)

10. Could you clarify whether projects listed in Appendix C are eligible for an LTESA?

Yes, these projects are eligible.

11. Is a portfolio approach written into the duration of storage?

Different durations of storage above 8 hours are both taken into account in the modelling in terms of meeting minimum LDS objectives but also the tender evaluation in assessing best value to consumers. Shorter than 8 hours may be of benefit in support of a generation fixed shape generation LTESA or firming infrastructure LTESA.

12. Is a new long-duration storage project that is behind the meter with an existing generation project eligible for a storage LTESA?

Projects that meet the definition in Section 43 of the EII Act are eligible. A behind the metre project could be eligible if it meets the eligibility criteria (for example, at least 8 hours of storage capacity) and is scheduled in the AEMO central dispatch process.

13. It is understood that LTESA is classified into generation, long-term storage, and firming (correct me if it is wrong). Any initial ideas on how LTESA tender will treat hybrid projects (ex., PV+BESS, when BESS will be capable 8 hours later or the minister calls for firming tender)?

Hybrid projects could be eligible for generation LTESAs and are expected to be well-placed to offer fixed shape and fixed volume contracts. Furthermore, if those projects are capable of at least 8 hours storages of their registered capacity they may also be eligible for a long-duration storage LTESA and a firming LTESA if they are registered as scheduled with AEMO and the Minister has directed a firming tender.